South Australian Nudibranchs, and an Enumeration of the known Australian Species.

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[Read April 4, 1905.]

Plates I. to XII.

Historical Sketch.

Our earliest information of Australian Nudibranchs dates from Baudin's expedition. The untrained collectors who visited Australia previously were unlikely to trouble with objects so difficult to procure or preserve.

In the first years of the last century, those distinguished marine zoologists, Peron and Lesueur, took back with them to Paris several species, which were studied by Cuvier. These included *Scyllæa pelagica*, *Phyllirhoa lichtensteinii*, *Kentrodoris maculosa*, and *Casella atromarginata*.

The next contribution was also from a French source. Quoy and Gaimard, the famous surgeon-naturalists of the Astrolabe Expedition, dredged their *Doris violacea* and *D. aurea* in nine fathoms, in Jervis Bay, N.S.W., and took *Elysia australis* on the beach near Sydney.

Several active naturalists, Jukes, Macgillivray, Huxley, and Ince, served on H.M.S.S. Fly and Rattlesnake when those vessels were surveying the coast of Queensland. Hence the British Museum obtained much material. Gray was provided with *Sphaerodoris incii* and *Asteronotus cruenta*, and Abraham with *Platydoris coriacea*, and others.

During a brief visit to Sydney Dr. Stimpson procured there his *Doris obtusa*, *D. excavata*, *Goniodoris obscura*, and *Aeolis cacaotica*.

George French Angas resided for some years in Sydney. From 1858 to 1860 he took opportunities to make water-colour drawings from life of Sydney nudibranchs. He examined thirty species, most of which were then new. Crosse published these sketches and descriptions, with comments of his own, in the *Journal de Conchyliologie*. This important paper represents the only work done locally.

During the voyage of the Challenger several species were dredged off the coasts of Queensland and New South Wales, and were described by Dr. Bergh in the Challenger Results.

About the same time the naturalists of H.M.S. Alert collected five species in North Queensland, which were published in the Zoology of that voyage.

A period of twenty years then elapsed, during which no additions of importance were made to our knowledge.

Recently Professor Bergh has described six new species from material gathered by Miss Lodder in Tasmania.

As Angas was unacquainted with the work of his predecessors, and as Abraham did not know the species of Angas, the revision here commenced requires to be continued.

In concluding this brief sketch we wish to draw attention to the valuable assistance rendered by Dr. J. C. Verco, in allowing one of us to accompany him on his marine dredging excursion, and thus affording an opportunity of observing and sketching the forms collected in their natural state, a factor of extreme importance in the systematic study of these perishable beings.

CENSUS OF THE DESCRIBED SPECIES OF AUSTRALIA.

NUDIBRANCHIATA.*

Nudibranchiata Cladohepatica.

FAMILY AEOLIDIADAE.

Genus **Aeolidiella**, Bergh, 1874.

Aeolidiella faustina, Bergh.

A. faustina, Bergh, Zool. Jahrb. xiii. (3), 1900, p. 235-236, Pl. xx., f. 39-40. *Id.*, Reis. im Arch. der Phil., vi., 1904, p. 2, Pl. i., f. 27-31.

Hab.—Ulverstone, Tasmania (Miss Lodder).

Genus **Coryphella**, Gray, 1850.

Coryphella foulisi, Angas.

Aeolis foulisi, Angas, Journ. de Conch. xii., 1864, p. 64, Pl. vi., f. 3. *Coryphella foulisi*, Bergh, Reis. im Arch. der Phil. ii (2), 1892, p. 1029.

Hab.—Sydney Harbour (Angas).

Coryphella (?) cacaotica, Stimpson.

Aeolis cacaotica, Stimpson, Proc. Acad. N. Sci. Philad vii., 1856, p. 388. *Id.*, Bergh, Reis. im Arch. der Phil. ii. (2), 1878, p. xii.

Hab.—Sydney Harbour (Stimpson).

Obs.—This name perhaps refers to a species of Angas.

Coryphella macleayi, Angas.

Aeolis macleayi, Angas, Journ. de Conch. xii., 1864, p. 65, Pl. vi., f. 4. *C. macleayi*, Bergh, Reis. im Arch. der Phil. ii. (2), 1878, p. xvi.

Hab.—Sydney Harbour (Angas).

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* In the following list the sequence of the species is based on the classification proposed by Dr. Bergh in Semper's Reisen im Archipel der Philippinen.

Genus **Rizzolia,** Trinchese, 1877.

Rizzolia australis, Bergh.

R. australis, Bergh., Chall. Zool. x., 1884, p. 27, Pl. ix., f. 1-5. *Id.,* Reis. im Arch. der Phil. ii. (2), 1892, p. 1031.

Hab.—Sydney Harbour (Challenger).

Genus **Flabellina,** Cuvier, 1830.

Flabellina ianthina, Angas.

F. ianthina, Angas, Journ. de Conch. xii., 1864, p. 66, Pl. vi., f. 6. *Id.,* Bergh, Reis. im Arch. der Phil. ii. (2), 1892, p. 1034.

Hab.—Sydney Harbour (Angas).

Flabellina ornata, Angas.

F. ornata, Angas, Journ. de Conch. xii., 1864, p. 67, Pl. vi., f. 7. *Id.,* Bergh, Reis. im Arch. der Phil. ii. (2), 1892, p. 1034.

Hab.—Sydney Harbour (Angas).

Flabellina newcombi, Angas.

F. newcombi, Angas, Journ. de Conch. xii., 1864, p. 68, Pl. vi., f. 8. *Id.,* Bergh, Reis. im Arch. der Phil. ii. (2), 1892, p. 1034.

Hab.—Coogee, near Sydney (Angas).

Genus **Fiona,** Alder & Hancock, 1853.

Fiona marina, Forskäl.

Limax marina, Forskäl, Descrip. Anim., 1775, p. 99. *Fiona marina,* Bergh, Chall. Zool. x., 1884, p. 9, Pl. xi., f. 1.

Hab.—Maroubra, near Sydney (Whitelegge).

Obs.—This world-wide mollusc has an extensive literature. It has been added to the Australian fauna by Hedley (Proc. Malac. Soc. i., 1895, p. 333). New Zealand specimens were described by Hutton as *Eolis plicata* (Trans. New Zealand Inst., xiv., 1882, p. 166, Pl. vi., f. 1). Plate discovered it in Chili (Bergh, Zool. Jahrb. xiii., 1900, p. 239).

Genus **Glaucus,** Forster, 1777.

Glaucus atlanticus, Forster.

G. atlanticus, Forster, Voy. Resolution i., 1777, p. 49. *Id.,* Bergh, Chall. Zool. x., 1884, p. 16. *Id.,* Hedley, Mem. Aust. Mus. iv., 1903, p. 401.

Hab.—Off Sydney and Southport, Queensland (Hedley).

Genus **Janus**, Verany, 1844.

JANUS (?) SANGUINEUS, Angas.

J. sanguineus, Angas, Journ. de Conch. xii., 1864, p. 63, Pl. vi., f. 5. *Id.*, Bergh., Reis. im Arch. der Phil. ii. (2), 1892, p. 1036.

Hab.—Sydney Harbour (Angas).

Obs.—This species has neither the crest nor the rhinophores of *Janus* (properly *Antiopa*), and is only retained here till a more suitable position may be found.

Genus **Janolus**, Bergh, 1884.

JANOLUS AUSTRALIS, Bergh.

J. australis, Bergh, Chall. Rep. x., 1884, p. 19, Pl. viii., f. 15-22, Pl. ix., f. 6-8.

Hab.—Arafura Sea (Challenger).

FAMILY DOTONIDÆ.

Genus **Doto**, Oken, 1812.

DOTO AUSTRALIS, Angas.

Melibœa australis, Angas, Journ. de Conch. xii., 1864, p. 62, Pl. vi., f. 2. *Melibe australis*, Bergh, Zool. Jahrb. Syst. v., 1891, p. 48. *Doto (?) australis*, Bergh, Reis. im Arch. der Phil. ii. (2), 1892, p. 1047.

Hab.—Sydney Harbour (Angas).

FAMILY BORNELLIDÆ.

Genus **Bornella**, Gray, 1850.

BORNELLA ADAMSI, Gray.

B. adamsi, Gray, Fig. Moll. Anim. iv., 1850, p. 107, Pl. cxcvi., f. 6. *Id.*, H. & A. Adams, Gen. Moll., Pl. lxv., f. 2. *Id.*, Bergh, Reis. im Arch. der Phil. ii. (2), 1892, p. 1053. *B. hermanni*, Angas, Journ. de Conch. xii., 1864, p. 61., Pl. vi., f. 1.

Hab.—Sydney Harbour (Angas).

Obs.—Prof. Bergh regards (Zool. Jahrb. Syst. v., 1891, p. 59) as doubtfully distinct from the above, *B. arborescens*, Pease, *B. caledonica*, Crosse, *B. semperi*, Crosse, and *B. hancockana*, Kelaart.

BORNELLA DIGITATA, Ad. & Reeve.

B. digitata, Ad. & Rv., Voy. Samarang, 1850, Moll., p. 67, Pl. xix., f. 1. *Id.*, Ald. & Hanck., Trans. Zool. Soc. v., 1864, p. 140, Pl. xxxiii., f. 8-9. *Id.*, Bergh, Reis. im Arch. der Phil. ii. (1), 1874, p. 301, Pl. xxxvii., f. 14-19, Pl. xxxviii.,

f. 13-22. *Id.*, Smith, Zool. Coll. Alert, 1884, p. 92. *Id.*, Eliot, Proc. Zool. Soc., 1904, ii., p. 101.

Hab.—Port Denison, Queensland (Alert).

BORNELLA EXCEPTA, Bergh.

B. excepta, Bergh, Chall. Zool. x., 1884, p. 36, Pl. vii., f. 13-22, Pl. viii., f. 1-13.

Hab.—Arafura Sea (Challenger).

FAMILY SCYLLAEIDÆ.

Genus **Scyllæa**, Linné, 1758.

SCYLLÆA PELAGICA, Linné.

S. pelagica, Linn. Syst. Nat. x., 1758, i., p. 644, 656. *Id.*, Cuvier, Ann. du Mus. vi., 1804, p. 424. *Id.*, Collingwood, Trans. Linn. Soc. Zool. ii., 1881, p. 137-8, Pl. x., f. 29-33. *Id.*, Bergh, Reis. im Arch. der Phil. ii. (2), 1892, p. 1056. *Id.*, Hedley, Proc. Roy. Soc., Vict. vii., n.s., 1895, p. 199.

Hab.—Terre d'Edels, Western Australia (Peron), Port Phillip, Victoria (Bracebridge Wilson), St. Vincent's Gulf, South Australia (Verco).

Obs.—This world-wide species has too extensive a bibliography to insert here unabridged.

FAMILY PHYLLIROIDÆ.

Genus **Phyllirhoa**, Peron & Lesueur, 1811.

PHYLLIRHOA LICHTENSTEINII, Eschscholtz.

Eurydice lichtensteinii, Eschscholtz, Isis, 1825, i., p. 737, Pl. v., f. 1. *Phylliroe punctulatum*, Quoy & Gaim., Voy. Astrolabe, Zool. ii., 1833, p. 407, Pl. xxviii., f. 15-18. *Id.*, Macdonald, Proc. Roy. Soc., Lond. vii., 1856, p. 363. *Id.*, Bergh. Reis. im Arch. der Phil. ii. (1), 1872, p. 210.

Hab.—Terre d'Edels, Western Australia (Quoy and Gaim.). Lord Howe Island (Macdonald).

Obs.—This bibliography is much abbreviated.

NUDIBRANCHIATA HOLOHEPATICA.

FAMILY PLEUROPHYLLIDIADÆ.

Genus **Pleurophyllidia**, Meckel, 1810.

PLEUROPHYLLIDIA CYGNEA, Bergh.

P. cygnea, Bergh, Malak. Blätt. xxiii., 1876, p. 9, Pl. i., f. 1-7. *Id.*, Reis. im Arch. der Phil. ii. (2), 1892, p. 1063.

Hab.—Swan River, W.A. (Cuming Coll.), St. Vincent's Gulf, S.A. (Verco), and Sydney Harbour (Hedley).

DORIDIDÆ CRYPTOBRANCHIATÆ.
FAMILY DORIDIDÆ.

Genus **Hexabranchus,** Ehrenberg, 1831.

HEXABRANCHUS FLAMMULATUS, Quoy & Gaim.

Doris flammulata, Quoy & Gaim., Voy. Astrolabe, Zool. ii., 1833, p. 257, Pl. xvii., f. 6-10. *Hexabranchus flammulatus*, Wild, Nat. Hist. Soc. Queensland i., 1894, p. 90.

Hab.—Tweed Heads, Queensland (Wild).

HEXABRANCHUS IMPERIALIS, Kent.

Doris imperialis, Kent, Naturalist in Australia, 1897, p. 151, Pl. v.

Hab.—Rat Island, Abrolhos, W.A. (Kent).

Genus **Archidoris,** Bergh, 1878.

ARCHIDORIS VARIA, Abraham.

Doris variabilis, Angas, Journ. de Conch. xii., 1864, p. 44, Pl. iv., f. 1 (not *Doris variabilis*, Kelaart, Ann. Mag. Nat. Hist. (3), iii., 1859, p. 300). *Doris varia*, Abraham, Proc. Zool. Soc., 1877, p. 209. *Doris pratenera*, Abraham, Proc. Zool. Soc., 1877, p. 258, Pl. xxx., f. 10-12.

Hab.—Sydney Harbour (Angas). St. Vincent's Gulf, S.A.

ARCHIDORIS STAMINEA, *spec. nov.*

Hab.—Backstairs Passage, S.A. (Verco).

Genus **Staurodoris,** Bergh, 1878.

STAURODORIS PUSTULATA, Abraham.

Doris pustulata, Abraham, Proc. Zool. Soc. 1877, p. 205, 256, Pl. xxix., f. 18, 19. *Staurodoris (?) pustulata*, Bergh, Reis. im Arch. der Phil. ii. (2), 1892, p. 1093.

Hab.—Australia (Abraham). St. Vincent's Gulf (Verco).

Genus **Alloiodoris,** Bergh, 1904.

ALLOIODORIS MARMORATA, Bergh.

A. marmorata, Bergh, Reis. im Arch. der Phil. vi., 1904, p. 42, Pl. iii., f. 12-19.

Hab.—Ulverstone, Tasmania (Miss Lodder). St. Vincent's Gulf (Basedow).

Genus **Discodoris,** Bergh, 1877.

DISCODORIS DUBIA. Bergh.

D. dubia, Bergh, Reis. im Arch. der Phil. vi., 1904, p. 50, Pl. iii., f. 29-30, Pl. iv., f. 1-2.

Hab.—Ulverstone, Tasmania (Miss Lodder.)

Discodoris egena, Bergh.

D. egena, Bergh, Reis. im Arch. der Phil. vi., 1904, p. 54, Pl. iv., f. 7-14.

Hab.—Ulverstone, Tasmania (Miss Lodder.)

Genus **Thordisa**, Bergh, 1877.

Thordisa clandestina, Bergh.

T. clandestina, Bergh, Chall. Zool. x., 1884, p. 106, Pl. iii., f. 21-25. *Id.*, Reis. im Arch. der Phil. ii. (2), 1892, p. 1098.

Hab.—Torres Straits (Challenger).

Genus **Halgerda**, Bergh, 1880.

Halgerda graphica, *spec. nov.*

Hab.—St. Vincent's Gulf, S.A. (Verco).

Genus **Kentrodoris**, Bergh, 1876.

Kentrodoris maculosa, Cuvier.

Doris maculosa, Cuvier, Ann. du Mus. iv., 1804, p. 466. *Id.*, Quoy & Gaim., Voy. Astrolabe, Zool. ii., 1833, p. 249, Pl. xvi., f. 3-5. *Id.*, Abraham, Proc. Zool. Soc., 1877, p. 202. *Id.*, Bergh, Reis. im Arch. der Phil. ii. (2), 1878, p. xxx. *Kentrodoris annuligera*, Bergh, Reis. im Arch. der Phil. ii. (2), 1890. p. 922.

Hab.—Sharks Bay, W.A. (Peron).

Obs.—Lack of space has excluded numerous references.

Genus **Platydoris**, Bergh, 1877.

Platydoris coriacea, Abraham.

Doris coriacea, Abraham, Proc. Zool. Soc., 1877, p. 203, 247, Pl. xxvii., f. 1-4. *Platydoris coriacea*, Bergh, Reis. im Arch. der Phil. ii. (2), 1892, p. 1102.

Hab.—Sir C. Hardy's Isles, Queensland (? H.M.S. Fly), Green and Masthead Islands, Queensland (Hedley).

Obs.—This species seems suspiciously like *Platydoris scabra*, Cuvier.

Platydoris infrapicta, Smith.

Doris infrapicta, Smith, Zool. Coll. Alert, 1884, p. 91.

Hab.—Queensland (Alert).

Platydoris cruenta, Gray.

Asteronotus cruenta (Alder MS.), Gray, Fig. Moll. Anim. iv., 1850, p. 44, 102, Pl. ccxxvi., f. 2, 2a. *Doris cruentata*, Abraham, Proc. Zool. Soc., 1877, p. 201; not *Doris cruentata*, Quoy & Gaim., Voy. Astrolabe, Zool. ii., 1833, p 260.

Hab.—Torres Straits (Ince).

Genus **Asteronotus,** Ehrenberg, 1831.

Asteronotus mabilla, Abraham.

A. mabilla, Bergh, Jahrb. Deut. Mal. Gesell. iv., 1877, p. 163 *(nom. nud.). Id.*, Abraham, Proc. Zool. Soc. 1877, p. 249, Pl. xxviii., f. 1-4. *Id.*, Bergh, Reis. im Arch. der Phil. ii., 1876, p. 644, 1892, p. 1103.

Hab.—Sydney Harbour (Hedley).

Genus **Hypselodoris,** Stimpson, 1855.

Obs.—We would point out that the species which Stimpson described as *Goniodoris obscura* is obviously that which Angas afterwards found in the same place and named *G. crossei.* Stimpson saw that his species was unsuitably placed in *Goniodoris*, and proposed for its reception *Hypselodoris.* As this name, though unknown to any later writer, has nine years' precedence over Alder & Hancock's *Chromodoris*, it must certainly replace it.

Hypselodoris obscura, Stimpson.

Goniodoris obscura, Stimpson, Proc. Acad. Nat. Sci. Philad., vii., 1855, p. 388. *G. crossei*, Angas, Journ. de Conch. xii., 1864, p. 54, Pl. v., f. 1. *Chromodoris crossei*, Bergh, Reis. im Arch. der Phil. ii. (2), 1884, p. 648-50. *Id.*, loc. cit., 1892, pp. 1109, 1110.

Hab.—Sydney Harbour (Angas).

Hypselodoris lineolata, van Hasselt.

Doris lineolata, van Hasselt, Bull. Sci. Nat. Zool. iii., 1824, p. 258. *Chromodoris striatella*, Bergh, Chall. Zool. x., 1884, p. 73, Pl. iii., f. 26-29, Pl. iv., f. 1-4. *Id.*, Journ. Mus. Godeff. xiv., 1879, p. 5. *Id.*, Reis. im Arch. der Phil. ii. (2), 1892, p. 1106.

Hab.—Port Denison (Dietrich) and Torres Straits (Challenger).

Hypselodoris runcinata, Bergh.

Chromodoris runcinata, Bergh, Reis. im Arch. der Phil. ii., 1877, p. 479-481, Pl. li., f. 32, 33, Pl. liii., f. 5-12; 1892, p. 1107. *Id.*, Chall. Zool. x., 1884, p. 76, pl. vi. f. 1-4. *Id.*, Eliot, Proc. Zool. Soc. 1904, i., p. 393. *C. iris*, Collingwood, Trans. Linn Soc. Zool. ii., 1881, p. 127, Pl. ix., f. 9-14.

Hab.—Sydney Harbour (Challenger).

Hypselodoris verrucosa, Crosse.

Goniodoris verrucosa, Crosse, Journ. de Conch. xii., 1864, p 56, Pl. v., f. 4. *Chromodoris verrucosa*, Bergh, Reis. im Arch. der Phil. ii. (2), 1892, p. 1108.

Hab.—Sydney Harbour (Angas).

Hypselodoris erinaceus, Crosse.

Goniodoris erinaceus, Crosse, Journ. de Conch. xii., 1864, p. 57, Pl. v., f. 5. *Chromodoris erinaceus*, Bergh, Reis. im Arch. der Phil. ii. (2), 1892, p. 1108.

Hab.—Sydney Harbour (Angas).

Hypselodoris bennetti, Angas.

Goniodoris bennetti, Angas, Journ. de Conch. xii., 1864, p. 51, Pl. iv., f. 10. *Chromodoris bennetti*, Bergh, Verhandl. k.k. zool.-bot. Ges. Wien, 1893, p. 415, Pl. iv., f. 12-17.

Hab.—Sydney Harbour (Angas).

Hypselodoris festiva, Angas.

Goniodoris festiva, Angas, Journ. de Conch. xii., 1864, p. 53, Pl. iv., f. 12. *Chromodoris festiva*, Bergh, Verhandl. k.k. zool.-bot. Ges. Wien, 1893, p. 417, Pl. iv., f. 18-22.

Hab.—Sydney Harbour (Angas).

Hypselodoris loringi, Angas.

Goniodoris loringi, Angas, Journ. de Conch. xii., 1864, p. 52, Pl. iv., f. 11. *Chromodoris loringi*, Bergh, Reis. im Arch. der Phil. ii. (2), 1892, p. 1109.

Hab.—Sydney Harbour (Angas).

Hypselodoris splendida, Angas.

Goniodoris splendida, Angas, Journ. de Conch. xii., 1864, p. 55, Pl. v., f. 2. *Chromodoris splendida*, Bergh, Reis. im Arch. der Phil. ii. (2), 1892, p. 1109. *Id.*, Eliot, Proc. Zool. Soc. 1904, i., p. 390.

Hab.—Sydney Harbour (Angas).

Hypselodoris daphne, Angas.

Goniodoris daphne, Angas, Journ. de Conch. xii., 1864, p. 54, Pl. v., f. 3. *Chromodoris daphne*, Bergh, Reis. im Arch. der Phil. ii. (2), 1892, p. 1109.

Hab.—Sydney Harbour (Angas).

Hypselodoris tasmaniensis, Bergh.

Chromodoris tasmaniensis, Bergh, Reis. im Arch. der Phil. vi. (2), 1905, p. 69, Pl. v., f. 12-15.

Hab.—Ulverstone, Tasmania (Miss Lodder).

Hypselodoris epicuria, *spec. nov.*

Hab.—St. Vincent's Gulf (Newland).

Genus **Casella**, H. & A. Adams, 1858.

Casella atromarginata, Cuvier.

Doris atromarginata, Cuvier, Ann. du Mus. iv., 1804, p. 473, Pl. ii., f. 6. *Goniodoris atromarginata*, Angas,

Journ. de Conch. xii., 1864, p. 51. *Casella atromarginata*, Bergh, Journ. Mus. Godeff. Heft. vi., 1874, p. 102, Pl. ii., f. 15-29, Pl. iii., f. 21-32. *Id.*, Reis. im Arch. der Phil. ii. (2), 1892, p. 1110. *Id.*, Eliot, Proc. Zool. Soc. 1904, i., p. 399. *Casella gouldii*, H. & A., Ad. Genera ii., 1857, Pl. xliii., f. 5. *Casella philippinensis*, Bergh, Reis. im Arch. der Phil. ii. (1), 1874, Pl. xxxiii., f. 1.

Hab.—Sydney Harbour (Angas).

Obs.—The above references are not exhaustive.

Genus **Albania**, Collingwood, 1881.*

ALBANIA (?) VERCONIS, *spec. nov.*

Hab.—St. Vincent Gulf, S.A. (Verco).

Genus **Ceratosoma**, Ad. & Reeve, 1848.

CERATOSOMA BREVICAUDATUM, Abraham.

C. brevicaudatum. Abraham, Ann. Mag. Nat. Hist. (4), xviii., 1876, p. 142, Pl. vii., f. 6. *C. oblongum*, Abraham, *loc. cit.*, p. 143, Pl. vii., f. 7, 7a, 7b. *Id.*, Bergh, Reis. im Arch. der Phil. ii. (2), 1892, p. 1111.

Hab.—Western Australia (Abraham), St. Vincent Gulf, S.A. (Verco), Sydney Harbour (Hedley).

CERATOSOMA ADELAIDÆ, *spec. nov.*

Hab.—St. Vincent Gulf, S.A. (Basedow).

CERATOSOMA TENUE, Abraham.

C. tenue, Abraham, Ann. Mag. Nat. Hist. (4), xviii., 1876, p. 141, Pl. vii., f. 5, 5b. *Id.*, Smith, Zool. Coll. Alert, 1884, p. 90. *Id.*, Bergh, Reis. im Arch. der Phil. ii. (2), 1892, p. 1111.

Hab.—Thursday Island, Torres Straits (Alert).

CERATOSOMA LIXI, Rochebrune.

C. lixi, Rochebrune, Naturaliste, 1894, p. 55. *Id.*, Arch. Mus. Paris, 3 ser., vii., p. 134, Pl. vi., f. 6.

Hab.—Dead Island, Torres Straits (Lix).

CERATOSOMA GIBBOSUM, Rochebrune.

C. gibbosum, Rochebrune, Naturaliste, 1894, p. 55. *Id.*, Arch. Mus. Paris, 3 ser., vii., p. 135, Pl. vi., f. 4.

Hab.—Dead Island, Torres Straits (Lix).

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* While these pages are going through the press, and too late to alter the title of Plate iv., we observed that Bergh (Reis. im. Arch. der Phil., ii. (2), 1894, p. 148) reduces *Albania* to a synonym of *Æthodoris*, Abraham, 1877.

Genus **Aphelodoris**, Bergh, 1879.

APHELODORIS LUCTUOSA, Bergh.

A. luctuosa, Bergh, Reis. im Arch. der Phil. vi. (2), 1905, p. 75, Pl. v., f. 26-32, Pl. vi., f. 1-2.

Hab.—Ulverstone, Tasmania (Miss Lodder).

Genus **Miamira**, Bergh, 1875.

MIAMIRA SINUATA, van Hasselt.

Doris sinuata, van Hasselt, Bull. d. Sci. Nat. and d. Geol. iii., 1824, p. 239. *Miamira nobilis*, Bergh, Journ. Mus. Godeff., Heft. vi., 1874, Pl. viii., f. 8, Heft. viii., 1875, p. 53, Pl. viii., f. 1-30, Pl. ix., f. 1-4. *Id.*, Reis. im Arch. der Phil. ii. (2), 1876, p. 411, Pl. xxxiii., f. 2, and 1892, p. 1112; vi. (2), 1905, p. 81, Pl. v., f. 33-36. *Id.*, Smith, Zool. Alert, 1884, p. 90. *Id.*, Eliot, Proc. Zool. Soc., 1904, i., p. 405.

Hab.—Port Denison, Queensland (Alert).

Genus **Sphaerodoris**, Bergh, 1877.

SPHAERODORIS INCII, Gray.

Doris incii (Alder M.S.), Gray, Fig. Moll. An. iv., 1850, Pl. ccxxvi., f. 1, p. 103. *Dictyodoris incii*, Bergh, Reis. im Arch. der Phil. ii. (2), 1880, Suppl. p. 75. *Sphaerodoris incii*, Bergh, Reis. im Arch. der Phil. ii. (2), 1892, p. 1113.

Hab.—Torres Straits (Ince).

FAMILY DORIOPSIDÆ.

Genus **Doriopsis**, Pease, 1860.

DORIOPSIS DENISONI, Angas.

Doris denisoni, Angas, Journ. de Conch. xii., 1864, p. 45, Pl. iv., f. 2. *Doridopsis gemmacea*, Ald. & Hancock, Trans. Zool. Soc. v., 1864, p. 126, Pl. xxxi., f. 4, 5, 6, 7. *Id.*, Bergh, Reis. im Arch. der Phil. ii. (2), 1884, p. 698; 1892, p. 1120. *Doridopsis denisoni*, Eliot, Proc. Zool. Soc., 1904, ii. (1905), p. 277.

Hab.—Sydney Harbour (Angas).

Obs.—Professor Bergh reduces Angas's name to a synonym of *D. gemmacea*. It appears, however, that *D. denisoni* has about six months' priority over *D. gemmacea*.

DORIOPSIS VIOLACEA, Quoy & Gaimard.

Doris violacea, Quoy & Gaim., Voy. Astrolabe, Zool. ii., 1832, p. 264, Pl. xix., f. 1-3. *Doriopsis violacea*, Bergh, Reis. im Arch. der Phil. ii. (2), 1892, p. 1121.

Hab.—Jervis Bay, N.S.W. (Astrolabe).

Doriopsis australis, Angas.

Actinodoris australis, Angas, Journ. de Conch. xii., 1864, p. 49, Pl. iv., f. 8. *Doriopsis australis*, Bergh, Reis. im Arch. der Phil. ii. (2), 1892, p. 1122.

Hab.—New South Wales (Angas).

Doriopsis australiensis, Abraham.

Doridopsis australiensis, Abraham, Proc. Zool. Soc., 1877, pp. 243, 263, Pl. xxx., f. 25-26. *Doriopsis australiensis*, Bergh, Reis. im Arch. der Phil. ii. (2), 1892, p. 1122.

Hab.—New South Wales.

Doriopsis aurea, Quoy & Gaimard.

Doris aurea, Quoy & Gaim., Voy. Astrolabe, Zool. ii., 1832, p. 265, Pl. xix., f. 4-7. *Doriopsis aurea*, Bergh, Reis. im Arch. der Phil. ii. (2), 1892, p. 1122.

Hab.—Jervis Bay, N.S.W. (Astrolabe), St. Vincent Gulf, S.A. (Verco).

Doriopsis carneola, Angas.

Doris carneola, Angas, Journ. de Conch. xii., 1864, p. 48, Pl. iv., f. 6. *Doriopsis carneola*, Bergh, Reis. im Arch. der Phil. ii. (2), 1892, p. 1122.

Hab.—Sydney Harbour (Angas), St. Vincent Gulf (Basedow).

Doriopsis nodulosa, Angas.

Doris nodulosa, Angas, Journ. de Conch. xii., 1864, p. 48, Pl. iv, f. 6. *Doriopsis nodulosa*, Bergh, Reis. in Arch. der Phil. ii. (2), 1892, p. 1122.

Hab.—Coogee, near Sydney (Angas).

Doriopsis (?) pantherina, Angas.

Doris pantherina, Angas, Journ. de Conch. xii., 1864, p. 47, Pl. iv.. f. 5

Hab.—Coogee, near Sydney (Angas).

FAMILY PHYLLIADIDÆ.

Genus **Phyllidia**, Cuvier, 1798.

Phyllidia varicosa, Lamarck.

P. varicosa, Lamarck, Syst. des An. s. vert., 1801, p. 66. *Id.*, Quoy & Gaim., Voy. Astrolabe, Zool. ii., 1832, p. 292, Pl. xxi., f. 25. *Id.*, Bergh, Reis. im Arch. der Phil. ii. (2), 1876, p. 380, Pl. xxv., f. 7, Suppl. 1881, p. 8, 1892, p. 1128. *Id.*, Eliot, Proc. Zool. Soc., 1904, ii. (1905), p. 281.

Hab.—Dampier's Archipelago, W.A. (Gazelle).

DORIDIDÆ PHANEROBRANCHIATÆ.

FAMILY POLYCERADÆ.

Genus **Triopa**, Johnston, 1838.

TRIOPA YATESI, Angas.

T. yatesi, Angas, Journ. de Conch. xii., 1864, p. 60, Pl. v., f. 8. *Id.*, Bergh, Reis. im Arch. der Phil. ii. (2), 1892, p. 1139.

Hab.—Sydney Harbour (Angas).

Genus **Palio**, Gray, 1857.

PALIO COOKI, Angas.

Polycera cooki, Angas, Journ. de Conch. xii., 1864, p. 58, Pl. v., f. 6. *Palio (?) cooki*, Bergh, Reis. im Arch. der Phil. ii. (2), 1892, p. 1142.

Hab.—Botany Bay (Angas).

Genus **Ohola**, Bergh, 1884.

OHOLA PACIFICA, Bergh.

O. pacifica, Bergh, Chall. Zool. x., 1884, p. 52, Pl. ix., f. 9-12.

Hab.—Arafura Sea (Challenger).

Genus **Angasiella**, Crosse, 1864.

ANGASIELLA EDWARDSI, Angas.

A. edwardsi, Angas, Journ. de Conch., 1864, xii., p. 49, Pl. iv., f. 9. *Nembrotha (?) edwardsi*, Bergh, Reis. im Arch. der Phil. ii. (2), 1892, p. 1145.

Hab.—Sydney Harbour (Angas).

Genus **Nembrotha**, Bergh, 1877.

NEMBROTHA VERCONIS, *spec. nov.*

Hab.—St. Vincent Gulf, S.A (Verco).

Genus **Placomopherus**, Leuckart, 1828.

PLACOMOPHERUS IMPERIALIS, Angas.

Plocamophorus imperialis, Angas, Journ. de Conch. xii., 1864, p. 59, Pl. v., f. 7. *Plocamopherus naevatus*, Abraham, Ann. Mag. Nat. Hist. (4), xviii., 1876, p. 139, Pl. vi., f. 4, 4a. *P. imperialis*, Bergh, Verh. Zool. bot. Ges. Wien, xxxiii., 1884, p. 144-9, Pl. vi., f. 10, Pl. x, f. 8-9, Reis. im Arch. der Phil. ii. (2), 1892, p. 1146.

Hab.—Sydney Harbour (Angas).

PLACOMOPHERUS INSIGNIS, Smith.

Plocamophorus insignis, Smith, Zool. Coll. Alert, 1884, p. 91, Pl. vi., f. l., li.

Hab.—Albany Island, Queensland (Alert).

Genus **Acanthodoris**, Gray, 1857.

ACANTHODORIS METULIFERA, Bergh.

A. metulifera, Bergh, Reis. im Arch. der Phil. vi. (2), 1905, p. 98, Pl. vii., f. 3-6.

Hab.—Ulverstone, Tasmania (Miss Lodder).

UNCLASSIFIED SPECIES.

DORIS ARBUTUS, Angas.

Journ. de Conch. xii., 1864, p. 47, Pl. iv., f. 4. *Id.*, Read, Proc. Linn. N.S.W., iv., 1879, p. 291, Pl. xvii.

Hab.—Coogee.

DORIS CHRYSODERMA, Angas.

Journ. de Conch. xii., 1864, p. 46, Pl. iv., f. 3.

Hab --Sydney Harbour.

DORIS COLLATATA, Abraham.

Proc. Zool. Soc., 1877, p. 205, 255, Pl. xxix., f. 25-26.

Hab.—Port Essington.

DORIS PECULIARIS, Abraham.

Proc. Zool. Soc., 1877, p. 211, 258, Pl. xxx., f. 15-17.

Hab.—Port Lincoln, S.A.

DORIS ANALAMPULLA, Abraham.

Proc. Zool. Soc., 1877, p. 205, 254, Pl. xxix., f. 8-10.

Hab.—Australia.

DORIS OBTUSA, Stimpson.

Proc. Acad. N. Sc., Philad., vii., 1855, p. 389.

Hab.—Sydney Harbour.

DORIS EXCAVATA, Stimpson.

Proc. Acad. N. Sc., Philad., vii., 1855, p. 389 (not *D. excavata*, Pease).

Hab.—Sydney Harbour.

DORIS, sp.

W. S. Kent, Great Barrier Reef, 1893, p. 362, pl. xiii. f. 6.

Hab.—Queensland.

Doris, sp.

W. S. Kent, Great Barrier Reef, 1893, p. 362, pl. xiii., f. 7.

Hab.—Queensland.

Ancula, sp.

W. S. Kent, Great Barrier Reef, 1893, p. 362, pl. xiii., f. 9.

Hab.—Queensland.

Nudibranchiate mollusc.

W. S. Kent, Great Barrier Reef, 1893, p. 362, pl. xiii., f. 8.

Hab.—Queensland.

Obs.—Perhaps a *Phyllidia*.

Sub-order Ascoglossa.

FAMILY ELYSIIDÆ.

Genus **Elysia**, Risso, 1818.

Elysia australis, Quoy & Gaimard.

Actæon australis, Quoy & Gaim., Voy. Astrolabe, Zool. 1832, p. 317, Pl. xxiv., f. 18-20. *E. coogeensis*, Angas, Journ. de Conch. xii., 1864, p. 69, Pl. iv., f. 9.

Hab.—Sydney Harbour (Astrolabe), Coogee (Angas)

TO BE EXCLUDED.

Allportia expansa, Ten.-Woods.

A. expansa, Ten.-Woods, Proc. Roy. Soc., Tas., 1876, p. 28

Hab.—Southport, Tasmania.

Obs.—In a paper read (June 10, 1902) to the Royal Society, Tasmania, but still unpublished, Hedley points out that this name was based on a Planarian worm, *Polycelis australis*, Schmarda.

REMARKS ON SOUTH AUSTRALIAN SPECIES, INCLUDING DESCRIPTIONS OF NEW SPECIES

Scyllæa pelagica, Linné.

Plate ix., figs. 1 and 2.

S. pelagica, Linn. Syst. Nat. x., 1875, i., p. 644, 656. *Id.*, Cuvier, Ann. du Mus. vi., 1804, p. 424, etc., etc.

Several divergent forms lie before us, but after consulting Bergh's criticisms on the species, and its variations, we do not hesitate to include them all under the one widespread species. The main differences are in the length of the dorsal

lobes and the colouration, the former feature depending largely upon the degree of contraction, and the latter, no doubt, upon the colour of the seaweed upon which the animal lived.

Dim.—The largest individual that has so far been found in South Australia measures 42 millimetres in length, the length of the lobes being 16, and height of body 21, making a total height of 37 mm.

Hab.—Dredged in 20 fathoms, off Antechamber Bay, Kangaroo Island, January, 1903 (Verco) : thrown up on Port Willunga beach (Newland).

Pleurophyllidia cygnea, Bergh.

Plate x., figs. 1 and 2 ; Plate xi., figs. 1-3 ; Plate xii., figs. 1-6.

P. cygnea, Bergh, Malakol, Blätter xxiii., 1876, p. 9, Pl. i., figs. 1-7. *Id.*, Semper's Reisen im Arch. der Phil. ii. (2), 1892, p. 1063.

With some confidence we apply Bergh's name to a species which we have obtained from St. Vincent Gulf and Sydney Harbour respectively. The species appears to be rare and not to inhabit the beach zone. Since the original description of the animal from the Swan River, Western Australia (whence it takes its name), it has not been re-taken by any collector. That description was based on an old spirit specimen. We add the following account drawn from a living animal : —

Body elongate, oblong ; sides nearly parallel, terminating in a blunt point posteriorly : dorsal surface flat, sloping towards the posterior extremity. Mantle (nothæum) fairly ample, slightly waved along the edge, and extending from behind the rhinophores : ornamented longitudinally, with a series of roughly parallel, black and yellowish, undulating ridges, the medial of which extending throughout the whole length, the lateral passing out at the sides, bordered with yellow. The lobe-like veil is colourless, edged with yellow, and with a few yellow spots in its centre. Foot dilated laterally in front, tapering behind : the edge waved and extending to beyond the sides of body : it is flat, grooved longitudinally along the centre posteriorly, and does not project appreciably behind the mantle. Rhinophores longitudinally laminate, pink, contractile. Branchiæ pink, on the under side of the lateral projection of the mantle. Mouth prominent. Genital orifice and anus prominent on the right side, the latter 19 mm. behind the former. The entire under-surface a uniform light crimson.

Radula pale yellow. Lateral spines numerous, about 70, of equal size, except the most central, which are smaller than

the rest. Average length of lateral spines, ·27 mm. The minutely denticulated margin was not observed. Between the lateral spines and central plate, with its cuspidated edge, an irregularly triangular, plane plate.

Dim.—Length 82, breadth 34 mm.

Hab.—Dredged in 20 fathoms, off Antechamber Bay, Kangaroo Island, January, 1903.

Obs.—The mollusc was kept alive for several days in a glass of sea water, and it was still alive when transferred to the preservative. It has retained its colour remarkably well in a weak solution (3 per cent.) of formaline.

Archidoris varia, Abraham.

Plate v., figs. 1-5.

Doris variabilis, Angas, Journ. de Conch. xii., 1864, p. 44, Pl. iv., fig. 1 (not *Doris variabilis*, Kelaart, Ann. Mag. Nat. Hist. (3), iii., 1859, p. 300). *Doris varia*, Abraham, Proc. Zool. Soc., 1877, p. 209. *Doris praetenera*, Abraham, Proc. Zool. Soc., 1877, p. 258, Pl. xxx., fig. 10-12.

This species is as abundant in South Australian waters as in Sydney Harbour.

In addition to the characters indicated by Angas we note that the skin is soft, and, in preserved specimens, has a flabby appearance. In dead examples the rugosities of the back sometimes disappear. The rhinophora arise from elevated conical sheaths, and are ornamented with about 24 lamellæ. Oral tentacles, with a deep longitudinal groove on the exterior side. Branchial plumes five, tripinnate. In colour the species ranges from pale yellowish (St. Vincent Gulf) to dark reddish-brown (Port River). The wrinkles on the back are outlined and exaggerated by a mesh-work of dark lines. The sole of the foot is white, edged with rich orange, and through the thin skin the liver is visible. Along the edge of the mantle muscle-fibres are discernible as short, white, radiating lines.

Radula amber yellow. Lateral spines hamate, numerous, about 70 on either side of each transverse row, decreasing very gradually in size inwardly. Average height of spines, ·3 mm. No central spine. Twenty-three rows of spines in specimen examined. ∝ · o · ∝ .

Hab.—Dredged in 20 fathoms, St. Vincent Gulf, January, 1903, and Spencer Gulf (Verco): Port River, in 4 fathoms, April, 1902 (Field Naturalists): taken at low water, Port Noarlunga (Ashby): Port Noarlunga (Newland).

Obs.—This species has hitherto been classified in *Doris*. On account of the general form, grooved tentacles, and radula, we propose to include it in *Archidoris*.

Archidoris staminea, *spec. nov.*

Plate vi., figs. 3 and 4.

Body irregularly elliptical, very slightly narrower posteriorly, convex. Cloak ample, frilled along the border; colour, a uniform tint of yellow: roughened by very numerous small tubercular elevations and depressions, which cover the skin as separate, stellate, or radiate groups of notches: the underside of the mantle, of a similar yellow colour, is marked with vein-like threadlets, multiply dividing and branching towards the outer edge. Foot rounded anteriorly, sides almost parallel, terminating in a blunt point, slightly channelled: colour yellow, darkened somewhat in the centre by the appearance of the liver through the skin. Dorsal tentacles clavate, situated rather far anteriorly. Oral tentacles linear, prominent. Eyes visible in small examples as little black specks behind the rhinophores.

Dim.—Length 32, breadth 19 mm.

Hab.—Dredged in 20 fathoms, Backstairs Passage, January, 1903 (Verco).

Staurodoris pustulata, Abraham.

Plate ix., fig. 3.

Doris pustulata, Abraham, Proc. Zool. Soc., 1877, p. 205, Pl. xxix., figs. 18, 19. *Staurodoris (?) pustulata*, Bergh, Reis. im Arch. der Phil. ii. (2), 1892, p. 1093.

The species before us corresponds well with that described by Abraham, but as that description was taken from spirit specimens, we add the following account of the live animal: —

Body elliptical, moderately convex. Mantle ample with a slightly waved margin: of an uncommon greenish-grey ground colour, covered with numerous opaque, yellow, warty tubercles of various sizes, standing out prominently from the darker background like golden beads. Foot tapers posteriorly to a blunt point, well within the mantle-margin: colour of the entire under-surface, a light flesh-red. Rhinophores completely retractile within cavities, the openings to which are surrounded with a circlet of nodulations. Branchial plumes, seven, tripinnate, of a deeper shape of grey.

Radula straw-yellow. Lateral spines numerous, about 68 on either side, increasing in size from centre outwards, no central spine, from 25 to 30 rows in specimen examined. ∝ · o · ∝ ·

Dim.—Length 20, breadth 11 mm.

Hab.—Dredged in 20 fathoms, Backstairs Passage, January, 1903 (Verco).

Alloiodoris marmorata, Bergh.

Plate viii., figs. 1 and 2.

Alloiodoris marmorata, Bergh, Reis. im Arch. der Phil. vi., 1904, p. 42, Pl. iii., figs. 12-19.

The identification of an unfigured species must always be a matter of some misgiving. None of the South Australian examples attain the size given by the author for Tasmanian specimens. In other respects the description harmonises so well with the animals before us that we have preferred to use Dr. Bergh's name for them. We were unable to detect the denticules on the lateral teeth. The following account was prepared from living specimens: —

Body elliptic, symmetrically rounded at both ends, moderately convex. Colour yellowish-white to greyish-brown, covered with minute spiculose elevations on the dorsal surface, which impart to it the brownish tint; also, with less numerous, larger elevations, surrounded by irregular circles of deep brown. The latter occasionally have a centre of opaque white, surrounded by a ring of reddish-brown, the whole giving the impression of miniature craters. Ventral surface translucent, white: irregularly sprinkled over with asymmetrical brown spots, either isolated or arranged in small groups. Mantle considerably broader than the foot, with a slightly undulating margin: fairly thin along the border, so that the colour-markings of the dorsal surface are visible from the under-side. Foot white, with few scattered spots of brown. Rhinophores and branchiæ brown, the latter seven or eight in number. Larger individuals have come under our notice since this description.

Dim.—Length 22·5, breadth 10 mm.

Hab.—Dredged in four fathoms, Port River, December, 1901 (Field Naturalists); taken at low water on rocks, covered with seaweed, off Edithburg, Yorke's Peninsula, January, 1903 (Basedow).

Halgerda graphica, *spec. nov.*

Plate iii., figs. 1-4.

Body squat, of elliptic form, symmetrically rounded at both ends, strongly convex. Colour opaque white, liver faintly visible through the mantle. Ornamented in the following remarkable manner: —The surface of the mantle is divided somewhat regularly into quadrilateral figures, on either side of a distinct central line, by slightly elevated ridges of a rich orange-yellow colour: within these divisions are similar elevated curves and lines, in places semi-symmetrical with regard to a dark central spot, almost invariably present in the centre of each division, but easily detachable by slight

abrasion. Under side of mantle white, sparsely dotted with large and small black spots, irregularly spaced. Foot rounded in front, sides approximately parallel and slightly frilled, ending posteriorly in an obtuse point, much narrower than mantle; colour opaque white, fringed with a deep orange-yellow border. Dorsal tentacles comparatively small, truncated, retractile within low sheaths, brown at the summit, white at the base. Oral tentacles, fairly long, linear, rounded in front. Genital aperture inconspicuous, situated about one-third the whole length from anterior end. Branchial plumes six, small, black, finely laciniated.

Radula light straw-coloured. Lateral spines numerous, about 40 on either side; hooked, smooth, rapidly increasing in size outwards, the three most lateral, however, small. Average height of spines, ·38 mm. No central spine. About 40 curved rows in specimen examined. Formula, 40·0·40.

Dim.—Total length 45, breadth 30, length of foot 42 mm.

Hab.—Dredged in 20 fathoms, off Antechamber Bay, Kangaroo Island, January, 1903 (Verco). Dr. Verco has dredged two individuals of this peculiar form on two separate occasions. In the Australian Museum, Sydney, there is a single specimen, collected on the beach at Middle Harbour after a gale, which is probably identical.

Obs.—Bergh's definition of *Halgerda* mentions that the lateral teeth of the radula are furnished with fine denticules, but as Eliot finds (Proc. Zool. Soc., 1903, p. 373) that this is not a constant feature, we have not considered the simple teeth of our species a bar to its admission in this genus.

The remarkable and artificial appearance presented by the ornamentation of this species resembles the hieroglyphic markings of primitive man, and suggests the species-name.

Hypselodoris epicuria, *spec. nov.*

Plate vii. figs 1-3.

Body elliptic, oblong, fairly convex, highest in region anterior to branchiæ. Mantle spiculose, of a rich red colour and covered with numerous silvery-white spiculose elevations, of a lighter shade, with a single row of dark red dots. Foot laterally expanded and slit in front, with a median groove, tapering behind; border waved: colour white, with a single row of largish yellow dots along the upper edge, and the upper surface of the tail with a faint tint of violet or rose. Both the rhinophoral and anal cavities are encircled with a stellate coronation of opaque white. Rhinophores surmounted on a white stalk, with 17 or 18 laminæ and non-retractile. Branchial plumes five, non-retractile, mono-pinnate, with indication of bipinnation at the summit: colour white.

Oral tentacles linear, projecting considerably beyond the mantle border when in motion.

Radula. Lateral spines numerous, about 30; hooked, the inner edge denticulated; surmounted on a strong base.

Dim.—Length 34, breadth 8 mm.

Hab.—Thrown up during a gale on Port Willunga beach (Newland).

Albania (?) verconis, *spec. nov.*

Plate iv., figs. 1-4.

Body oblong-ovate, rounded in front, moderately flattened on top; sides elevated; a strongly acute tail with a distinct central dorsal ridge, extends beyond the mantle edge when in motion; on death this tail curled up. Colour, exquisitely tinted dorsally, with faint, semi-transparent, reddish-violet near the border, fading imperceptibly to a light brown in the central region, which is further traversed by a fine network of opaque white lines, not discernible nearer the margin; ventrally of a uniform pale violet. Mantle serrated along the sides, and in parts upturned, produced frontally. Head, large, distinct. Foot acutely pointed, with a border frill. Rhinophores small, clavate, laminate, with about twelve laminæ, non-retractile. Genitalia large, situated about one-fifth the whole length from the anterior end. Branchial plumes ten, simply pinnate, completely surrounding the vent, non-retractile; colour, opaque white.

Radula. Colour, brownish-yellow, deepest in shade at the dilated end of odontophore. Lateral spines, about 22 on either side, stout, hooked, the central four or five trifidated. No rachidian. About 42 straightish rows in specimen examined. 22·0·22.

Dim.—Length 27, breadth 11, height 9 mm.

Hab.—A single individual dredged in 20 fathoms, off Antechamber Bay, Kangaroo Island, January, 1903 (Verco).

Obs.—With considerable hesitation we have referred this species to *Albania*. The general appearance, branchiæ, and serrate edge of the mantle suggest this genus. Dr. Collingwood describes a frontal veil in the type-species; this was not observed in the living animal. The only specimen that was found has so shrunk that we cannot now decide on its absence or presence.

Ceratosoma brevicaudatum, Abraham.

Plate i., figs. 1-4

Ceratosoma brevicaudatum, Abraham, Ann. Mag. Nat. Hist. (4), xviii., 1876, p. 142, Pl. viii., fig. 6. *Ceratosoma oblongum*, Abraham, *loc. cit.*, p. 143, Pl. vii., figs. 7, 7a, 7b. *Id.*, Bergh, Reis. im Arch. der Phil. ii. (2), 1892, p. 1111.

Dr. Bergh brackets this species with *C. caledonicum*, Fischer, *C. tenue*, Abraham, and *C. oblongum*, Abraham. It seems to us that Fischer's description indicates a species in which the lobes of the nothaeum are more developed: the colour scheme of the New Caledonian species is quite unlike that of the Australian. The difference between *C. brevicaudatum* and *C. oblongum* seems to us merely a matter of preservation. Out of a parcel resulting from the same dredging we have seen individuals, some of which shrunk to the shape of *oblongum* and others assumed in contraction the form of *brevicaudatum*. The following description was drawn up from living specimens: —

Body large, elongate, dorsally flat, rounded in front, sides nearly parallel, except along a slight lateral enlargement in the centre, and tapering to an obtuse point behind; sides much elevated, especially in the region of the vent. Cloak obsolete, sub-quadrangular, with an undulate margin, and ending posteriorly in a peculiar nipple-like protuberance. Colour, beautifully shaded with tints of buff to light brown, usually of a deeper colour at the border, and gradually fading inwards, leaving along the margin of the dorsal surface a series of alternate light and dark patches, there being in the centre of the former in each case a round, violet-purple spot surrounded by a uniform ring of reddish-purple. The central area of this surface is richly sprinkled with circular spots of varying size, of a light violet-purple colour, with a darker border, and delicately surrounded in some cases by a rim of light lemon-yellow: the larger spots of this series are also rendered conspicuous by being situated within the more faintly tinted patches of the cloak. The "post-branchial flesh protuberance" is neatly decorated by a series of brown circles, placed contiguously so as to produce a regular network with meshes of different dimensions. The sides are somewhat similarly marked to the cloak, being lightly tinted and richly sprinkled with three irregular, longitudinal rows of spots, the two outer rows of rich purple, the inner of a lighter violet-purple. The median row does not extend to beyond the length of the cloak, and thus leaves the dorsal portion of the tail marked with deep purple spots only. The spots are in this portion irregularly scattered, and often appear as small groups of two or three: they are more numerous and smaller in size than those upon the cloak. Foot linear, tapering posteriorly to a blunt point; colour white. Dorsal tentacles clavate, obliquely laminated; the number of lamellæ varying from 16 to 30 or more; colour rich orange yellow. Sheaths very slightly elevated. Oral tentacles stout, sub-conical, tapering towards the points. Genital aperture

prominent. Branchial plumes twelve, intergrown at the base, and rather difficult to separate, incompletely surrounding the tubular anus in horseshoe shape, the posterior portion being bare; they are retractile with the anus into a common cavity; the five posterior plumes on either side terminate in the same foot stem respectively, the remaining two plumes are unequal in size. Colour, rich reddish-yellow.

Radula. Deep yellow to brown in colour. Lateral spines numerous, about 140 on either side: simply hooked, with an average length of ·2 mm.: about 80 rows in specimen examined. No central spine. The shape of the odontophore and the arrangement of the spines are similar to the corresponding features of *Doris adelaidæ, spec. nov.* Formula, ∝ · o · ∝ .

Dim.—Length 111, breadth 25, height 31 mm.

Hab.—Dredged in 20 fathoms, Gulf of St. Vincent, and off Antechamber Bay, Kangaroo Island, January, 1903 (Dr. Verco); taken at low water, Port Noarlunga (Dr. Torr and L Ashby); and Salt Creek Bay, Yorke Peninsula (E. H. Matthews).

Obs.—This fine species appears to be fairly plentiful and well distributed within our gulf. Dr. Verco has dredged it on various occasions. Though specifically identical, the littoral specimens are nowhere nearly as large as the deep-water forms. The specimens from Antechamber Bay, in particular, deserve mention for their large size and fine colouration.

Ceratosoma adelaidæ, *spec. nov.*

Plate x., fig. 3-4.

Body small, flattened on top, elongate, a little wider at the head than further posteriorly, terminating in a small tail. Mantle sparingly developed. Foot rounded in front, attenuated behind, projecting to no considerable extent beyond the mantle. Colour white underneath, scantily spotted with light lilac along the sides: the dorsal surface, for the most part of a pale buff colour, is bordered on either side by somewhat regularly spaced deep reddish-violet spots (about eight on either side), which are made the more pronounced by being surrounded each by a whitish space, the interspaces between these spots being of a somewhat deeper shade of brown than the rest: the central area is decorated with rows of light bluish spots. Dorsal tentacles club-shaped, obliquely laminated, orange-red in colour. Branchial plumes coherent at their base, apparently six, non-retractile, of the same tint as the rhinophores.

Dim.—Length 8, breadth 3 mm.

Hab.—Taken at low water off Marino Rocks in December, 1901; and also off Edithburg, Yorke Peninsula, in January, 1903.

Obs.—The species appears to live on the under side of rocks covered with seaweed, and partially buried in soft mud.

Doriopsis aurea, Quoy & Gaim.

Plate vii., fig. 4.

Doris aurea, Quoy & Gaim., Voy. de l'Astrolabe, Zool. ii., 1832, p. 265, Pl. xix., figs. 4-7. *Doriopsis aurea*, Bergh, Reisen im Arch. der Phil. ii. (2), 1892, p. 1122.

The type of this species was dredged in deep water in Jervis Bay, New South Wales. Except that the French authors describe their species as over two inches in length (ours is only 15 mm. long and 6 mm. broad), the original account harmonises well with that of South Australian examples. The white dots on the back are more regularly disposed in Quoy & Gaimard's figure, and the foot in South Australian specimens is white; whereas, in the figure quoted, it is red.

Examples from New South Wales are not accessible to us at present, but in view of the close correspondence between our material and Quoy & Gaimard's description we are unwilling to differentiate our form.

Hab.—Dredged in 5½ fathoms, off Orontes Shoal, Yorke Peninsula; also in 9 fathoms on weed, opposite the American River, Kangaroo Island, January, 1903 (Verco).

Doriopsis carneola, Angas.

Plate vi., figs. 1 and 2.

Doris carneola, Angas, Journ. de Conch. xii., 1864, p. 48. Plate iv., fig. 7. *Doriopsis carneola*, Bergh, Reisen im Arch. der Phil. ii. (2), 1892, p. 1122.

A species has been taken by one of us at Marino, South Australia, which, neglecting slight locality variations, must be regarded as Angas's *Doris carneola*. It measures 29 mm. in length, 17½ in breadth, as against Angas's data of 28 and 17 mm. respectively. The colouration of one South Australian example was identical with that of the Port Jackson type, while another individual from Marino had quite a different colour scheme. It was of a dirty greyish-white on the dorsal surface, speckled with silvery-white dots, which were connected by a faint network of white lines, the central space in the region of the liver appearing pinkish or brown: ventral surface white. The under side of the mantle of both individuals is marked with delicate vein-like, multiple branching lines. The mantle is ample, hard, thick, and fortified with numerous calc-spicules. The foot is large, and terminates bluntly. The rhinophores are clavate, with about 10 laminæ; situated rather far anteriorly; colour yellow or

white. We do not note the projecting sheaths of these tentacles, that are apparently represented in Angas's sketch. Branchial plumes, four, tripinnate; colour, light orange or white.

Hab.—Marino, taken from under the rocks, at low water, March, 1902 (Basedow).

Nembrotha (?) verconis, *spec. nov.*

Plate ii., figs. 1-3.

Body large, linear, oblong, swollen in centre, and tapering behind. Colour, rich lemon-yellow, with large disconnected blunt tubercles of deep prussian blue arranged very indistinctly parallel to the edge of the foot. The skin is very delicate, and peels off easily on abrasion; it is noticeably wrinkled, the pits of the folds thus produced appearing of a deeper shade than the rest. Cloak almost entirely wanting. Frontal margin (veil) small, of deep prussian blue colour, composed of three semi-circular dilations, the two lateral of which arch laterally around the dorsal tentacles on either side, then gradually fading to *nil* posterior to them. Foot square in front, dilated outwardly at the anterior end, sides slightly frilled, approximately parallel, passing posteriorly to a bluntish point, colour light sea-blue, with a deep blue border; liver visible as a faint brown patch in the centre. Dorsal tentacles sub-clavate, tapering, laminated; about 30 slightly oblique laminæ, non-retractile; colour deep prussian blue, with a yellow stalk. Eyes not visible. Genital aperture prominent, situated one-fourth the whole length from the frontal margin; of a lighter (greenish) blue colour than the tubercles. Branchial plumes five, tripinnate, almost completely surrounding the anus; colour dark yellow at the base, passing into a rich blue along the stems and delicately fringed with small purple tufts.

Radula. Marginal plates four, subquadrate, curved over in front, the most remote very small or wanting; lateral spines one, large, hooked, bifidated; possessing a peculiar spiral twist. Central plate subquadrate-ovate. Colour light straw to amber yellow. About 18 rows. Formula, $4 + 1 \cdot 1 \cdot 1 + 4$.

Dim.—Length 55, breadth 12 mm.

Hab.—Dredged in 20 fathoms, off Newland Head, Backstairs Passage, January, 1903 (Verco).

Obs.—The indications of the existence of a cloak are almost entirely wanting, beyond the slight continuation of the frontal margin past the dorsal tentacles and the somewhat linear arrangement of the tubercles. This species seems clearly separated from co-generic forms by its vivid primrose colour. A large specimen is in the Australian Museum

collection; it measures 40 mm. in length, whereas the contracted body of our type barely reaches 30 mm. We have much pleasure in dedicating this beautiful species to Dr. J. C. Verco.

EXPLANATION OF PLATES.

Plate I.

Fig. 1. Ceratosoma brevicaudatum, *Abraham*—Deep-water form. Dorsal view. Slightly enlarged.
Fig. 2. Ceratosoma brevicaudatum, *Abraham*—Deep-water form. Side view. Slightly enlarged.
Fig. 3. Ceratosoma brevicaudatum, *Abraham*—Shallow-water form. Natural size.
Fig. 4. An enlarged branchia of *C. brevicaudatum*, Abraham.

Plate II.

Fig. 1. Nembrotha verconis, *spec. nov.*—Side view. × 2.
Fig. 2. Nembrotha verconis, *spec. nov.*—Ventral view. × 2.
Fig. 3. A single row of teeth from the radula of *N. verconis*, *spec. nov.*

Plate III.

Fig. 1. Halgerda graphica, *spec. nov.*—Dorsal view. × 1⅓.
Fig. 2. Halgerda graphica, *spec. nov.*—Ventral view × 1⅓.
Fig. 3. Teeth from the radula of *H. graphica.*
Fig. 4. Enlarged teeth from the radula of *H. graphica.*

Plate IV.

Fig. 1. Albania verconis, *spec. nov.*—Dorsal view. × 3.
Fig. 2. Albania verconis, *spec. nov.*—Ventral view. × 3.
Fig. 3. Teeth from the radula of *A. verconis.*
Fig. 4. Radula of *A. verconis*, the cross lines representing transverse rows of teeth.

Plate V.

Fig. 1. Archidoris varia, *Abraham*—Dorsal view. × 1⅔.
Fig. 2. Archidoris varia, *Abraham*—Ventral view. × 1⅔.
Fig. 3. Teeth from the radula of *A. varia.*
Fig. 4. An enlarged branchia of *A. varia.*
Fig. 5. Radula of *A. varia.*

Plate VI.

Fig. 1. Doriopsis carneola, *Angas*—Ventral view. × 1⅘.
Fig. 2. Doriopsis carneola, *Angas*—Dorsal view. × 1⅘
Fig. 3. Archidoris staminea, *spec. nov.*—Ventral view. × 2⅓.
Fig. 4. Archidoris staminea, *spec. nov.*—Dorsal view. × 2⅓.

Plate VII.

Fig. 1. Hypselodoris epicuria, *spec. nov.*—Dorsal view. × 3.
Fig. 2. Hypselodoris epicuria, *spec. nov.*—Ventral view. × 3.
Fig. 3. An enlarged branchia of *H. epicuria.*
Fig. 4. Doriopsis aurea, *Quoy & Gaimard*—Dorsal view. × 5 3-5.

Plate VIII.

Fig. 1. Alloiodoris marmorata, *Bergh*—Dorsal view. × 3½.
Fig. 2. Alloiodoris marmorata, *Bergh*—Ventral view. × 3½.

Plate IX

Fig. 1. Scyllæa pelagica, *Linné*—Side view. Lobes contracted. $\times 3\frac{1}{2}$

Fig. 2. Scyllæa pelagica, *Linné*—Side view. Lobes expanded. $\times 2\frac{2}{5}$.

Fig. 3. Staurodoris pustulata, *Abraham*—Dorsal view. $\times 3\frac{3}{4}$.

Plate X.

Fig. 1. Pleurophyllidia cygnea, *Bergh*—Dorsal view. Animal fully extended. Slightly enlarged.

Fig. 2. Pleurophyllidia cygnea, *Bergh*—Ventral view. Animal partially contracted. Slightly enlarged.

Fig. 3. Ceratosoma adelaidæ, *spec. nov.*—Dorsal view. $\times 10\frac{3}{4}$.

Fig. 4. Ceratosoma adelaidæ, *spec. nov.*—Dorsal view. $\times 3\frac{1}{2}$.

Plate XI.

Fig. 1. Pleurophyllidia cygnea, *Bergh*—Side view. Animal contracted. Natural size.

Fig. 2. Pleurophyllidia cygnea, *Bergh*—Front view. Animal contracted. Natural size.

Fig. 3. Pleurophyllidia cygnea, *Bergh*—Ventral view Animal contracted. Natural size.

Plate XII.

Fig. 1. Radula of *Pleurophyllidia cygnea*, Bergh, showing arrangement of transverse rows of teeth.

Fig. 2. Rachidian cusp with its denticles, of the radula of *P. cygnea*

Figs. 3 and 3a. Accessory plates connecting the rachidian with the laterals of the radula of *P. cygnea*.

Fig 4. Lingual spines of *P. cygnea*—Exterior aspect.

Fig. 5. Lingual spines of *P. cygnea*—Interior aspect.

Fig. 6. Mandible of *P. cygnea*.